Remarks

I. Status of Claims

Claims 1-5 and 7-11 are pending in the application. Claims 1 and 8 are currently amended. Applicant respectfully submits that no new matter is added. Claims 6 and 12 are canceled without prejudice to or disclaimer of the subject matter therein.

Claims 1-5 and 7 stand rejected under 35 U.S.C. 103(a) as being allegedly unpatentable over Buchner *et al.* (DE 196 49 434 C1) (hereinafter "Buchner") in view of Yi *et al.* (USP 6,586,123) (hereinafter "Yi"). Claim 6 stands rejected 35 U.S.C. 103(a) as being allegedly unpatentable over Buchner in view of Yi, and further in view of Reher *et al.* (USP 5,215,834) (hereinafter "Reher"). Claims 8-11 stand rejected under 35 U.S.C. 103(a) as being allegedly unpatentable over Buchner *et al.* (DE 196 49 434 C1) in view of Muchinic *et al.* (USP 6,558,824), and further in view of Yi *et al.* (USP 6,586,123).

The Applicant respectfully requests reconsideration in view of the following remarks.

II. Pending Claims

Claim 1 stands rejected under 35 U.S.C. 103(a) as being allegedly unpatentable over Buchner in view of Yi. Claim 8 stands rejected under 35 U.S.C. 103(a) as being allegedly unpatentable over Buchner in view of Yi and Muchinic. Claim 6 stands rejected 35 U.S.C. 103(a) as being allegedly unpatentable over Buchner in view of Yi, and further in view of Reher.

The Applicant respectfully submits that independent claims 1 and 8 are patentable over the cited references because they at least recite, "...introducing a cooling medium into the fuel cell...changing a temperature of the cooling medium when measuring the voltage of each cell." (emphasis added)

The present application regards a fuel cell diagnostic method in which a cross-leak amount can be quantitatively determined and in which the amount of cross-leak of each cell in a stacked state can be determined.

In accordance with certain embodiments of the present application, an anode is supplied with hydrogen and the cathode is supplied with an inert gas (e.g., nitrogen). An electromotive force, which is dependent on the difference between the concentration of hydrogen on the anode

side and the concentration of hydrogen on the cathode side (that is, a difference in partial pressure between the above two concentrations), is generated in a cell. By monitoring the generated voltage of each cell, the amount of cross-leak of each cell can be quantitatively determined.

The gas pressure on the anode side and the gas pressure and/or the cooling medium temperature on the cathode side may be changed at the time of measurement of the voltage of each cell. By changing the gas pressure and/or the cooling medium temperature, various operational states of the fuel cell can be created. Therefore, the amounts of cross-leak of each cell in such various states can be determined and/or estimated.

For example, if a differential pressure is provided between the anode and the cathode for measurement, it may be possible to determine the degree of degradation (degree of perforation) of the membrane. Further, if a change in the differential pressures during measurement causes a large change in the amounts of cross-leak of a cell, the membrane of the cell is considered to have a hole. Still further, by changing the temperature of the cooling medium, the temperature dependency of the amounts of cross-leak can be determined.

By the Examiner's own admission, neither Buchner, Yi, nor Muchinic disclose introducing a cooling medium into a fuel cell and changing a temperature of the cooling medium at the time of measuring the voltage of each cell. In order to cure these deficiencies, the Office Action cites column 2, lines 34-64, of Reher. The primary difference between the claimed invention and Reher is that the claimed invention is directed to a fuel cell. In contrast to the present application, Reher is directed to a battery, not a fuel cell. Therefore, in Reher, the cooling medium is not introduced into the battery. Thus, the Applicant respectfully submits that Reher is not an appropriate reference to combine with Bucher and Yi, which are directed to fuel cells.

Therefore, Applicant respectfully submits that none of the cited references disclose introducing a cooling medium into the fuel cell and changing a temperature of the cooling medium when measuring the voltage of each cell as recited in claims 1 and 8.

For at least these reasons, claims 1 and 8 and their dependent claims are patentable over the cited references.

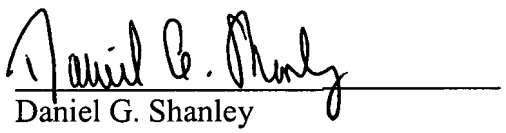
III. Conclusion

In light of the above discussion, Applicant respectfully submits that the present application is in all aspects in allowable condition, and earnestly solicits favorable reconsideration and early issuance of a Notice of Allowance.

The Examiner is invited to contact the undersigned at (202) 220-4420 to discuss any matter concerning this application. The Office is authorized to charge any fees related to this communication to Deposit Account No. 11-0600.

Respectfully submitted,

Dated: May 29, 2007

By: 
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